

Express Mail No. EV323493117US

ABSTRACT OF THE DISCLOSURE

An improved scalable, resistive element for use in a semiconductor device that can be produced with a small feature size and precise resistance is provided by the present invention. The resistive element includes a base layer positioned on top of a metal line. A seed layer of is deposited on top of the base layer. A thin barrier layer of Al is deposited on top of the seed layer and oxidized. A non-magnetic metal layer is then deposited on top of the barrier layer. The base layer and the non-magnetic metal layer form electrodes on either side of the barrier layer. The barrier layer is thin enough that a tunneling current can travel between the electrodes. The resulting resistive element may be constructed with a high resistance and a very small feature size.

TPA1 #1297612 v2